

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 January 2004 (15.01.2004)

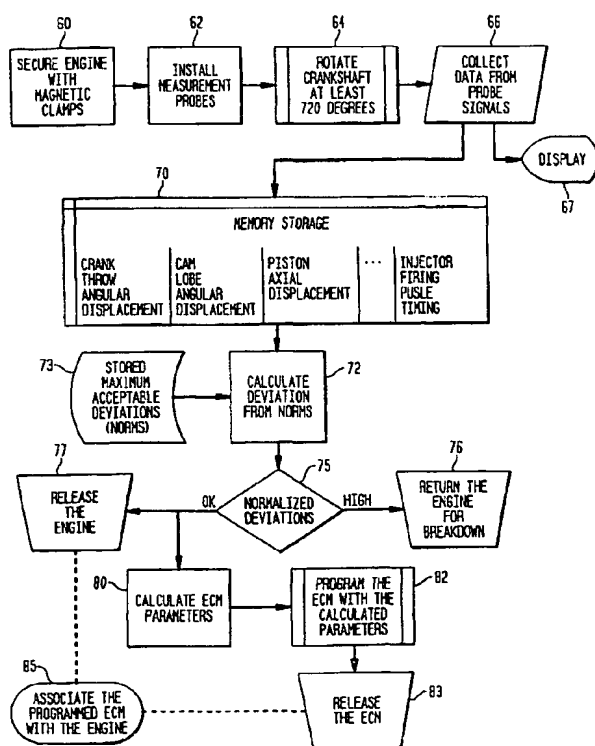
PCT

(10) International Publication Number
WO 2004/005689 A1

- (51) International Patent Classification⁷: F02D 41/34, 41/26
- (71) Applicant (for all designated States except US): VERI-TEK INC. [US/US]; 50120 Pontiac Trail, Wixom, MI 48393-2019 (US).
- (21) International Application Number: PCT/US2003/020729
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): JURANITCH, James, C. [US/US]; 2251 Shankin, Walled Lake, MI 48390 (US). OLSCHESFSKI, Robert, D. [US/US]; 55546 Park Place, New Hudson, MI 48165 (US).
- (22) International Filing Date: 2 July 2003 (02.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (74) Agents: ROHM, Benita, J. et al.; Rohm & Monsanto P.L.C., 660 Woodward Avenue, Suite 1525, Detroit, MI 48226 (US).
- (30) Priority Data: 60/393,648 2 July 2002 (02.07.2002) US
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application: US 60/393,648 (CON) Filed on 2 July 2002 (02.07.2002)

[Continued on next page]

(54) Title: SYSTEM FOR IMPROVING ENGINE PERFORMANCE AND REDUCING EMISSIONS



(57) Abstract: A method of correcting engine performance in response to assembly deviations includes the steps of measuring the physical characteristics of each cylinder of the engine, and storing the resulting data in the associated ECM. The engine is then operated in accordance with the stored data. The physical characteristics that are measured include, *inter alia*, a distance of axial displacement of each piston within its associated cylindrical bore; a timing characteristic of the camshaft; a timing of a fuel injection interval; the rate of fuel flow as a function of crankshaft angle of rotation, and a timing characteristic of the crankshaft. Some of the operating parameters that are controlled during engine operation in response to the data stored in the ECM include, *inter alia*, the air:fuel ratio and the timing of a fuel injection interval for each piston. These corrections result in increased power, decreased emissions, better mileage, a smoother running engine, and less costly components.

WO 2004/005689 A1